

Appln No. 09/692,494

Amdt date April 14, 2004

Reply to Notice of Non-Compliant Amendment of March 24, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. to 10. (Cancelled).

11. (Withdrawn) An irrigation probe according to claim 43, wherein the tubular body has an outer diameter ranging from about 0.50 inch to about 0.70 inch.

12. (Withdrawn) An irrigation probe according to claim 43, wherein the tubular body has an inner diameter ranging from about 0.40 inch to about 0.60 inch.

13 to 16. (Cancelled).

17. (Previously Presented) An irrigation probe according to claim 34, wherein the probe body has a length ranging from about 3.5 inches to about 12 inches.

18. (Previously Presented) An irrigation probe according to claim 34, wherein the probe body has a length ranging from about 5 inches to about 10 inches.

19. to 25. (Cancelled).

26. (Withdrawn) A method according to claim 56, wherein the generally rigid probe body comprises:

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tubing having proximal and distal ends and first and second lumens extending therethrough, wherein the electrode is mounted at the distal end of the tubing;

a stiffening wire having proximal and distal ends that extends through the second lumen of the tubing; and

an infusion tube that extends at least a part of the way through the first lumen of the tubing, wherein the distal end of the infusion tube is in fluid communication with the inner cavity of the irrigation tube.

27. (Withdrawn) A method according to claim 26, wherein the stiffening wire is made of a malleable material.

28. to 29. (Cancelled)

30. (Previously Presented) A method according to claim 56, wherein the probe body has a length ranging from about 3.5 inches to about 12 inches.

31. (Previously Presented) A method according to claim 56, wherein the probe body has a length ranging from about 5 inches to about 10 inches.

32. (Previously Presented) A method according to claim 56, wherein the probe body has a length ranging from about 7 inches to about 8 inches.

33. (Previously Presented) A method for treating atrial fibrillation in a patient comprising:

opening the heart of the patient; and

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ablating at least one linear lesion in the heart tissue using an irrigation probe as recited in claim 34.

34. (Currently Amended) An irrigation probe comprising:

a generally rigid probe body having proximal and distal ends;

a generally flexible irrigation tube having first and second ends, the irrigation tube defining an inner cavity, wherein the irrigation tube generally forms a loop, wherein [and both] the first end of the irrigation tube is fixedly attached at a first location on the distal end of the probe body and the second end of the irrigation tube is [ends are] fixedly attached [to] at a second location on the distal end of the probe body, the irrigation tube having at least one irrigation opening through which fluid can pass from the inner cavity to the outside of the irrigation tube;

means for introducing fluid into the inner cavity of the irrigation tube; and

[as] a continuous electrode comprising a flexible metal ribbon having first and second ends, wherein the metal ribbon is coiled around the irrigation tube to form coils, and wherein space is provided between the coils to allow fluid to pass from the irrigation tube to the outside of the electrode.

35. (Cancelled).

36. (Currently Amended) An irrigation probe according to claim 34, wherein the first end of the metal ribbon electrode is fixedly attached at a first location on the distal end of the

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probe body, and the second [ends] end of the metal ribbon electrode [are] is fixedly attached [to] at a second location on the distal end of the probe body.

37. (Currently Amended) An irrigation probe according to claim 34, wherein the probe further comprises an electrode lead wire with proximal and distal ends, wherein the proximal end of the electrode lead wire is electrically connected to a source of ablation energy and the distal end of the electrode lead wire is electrically connected to the electrode.

38. (Original) An irrigation probe according to claim 34, wherein the means for introducing fluid into the inner cavity comprises an infusion tube having proximal and distal ends, wherein the distal end of the infusion tube is in fluid communication with the inner cavity.

39. (Original) An irrigation probe according to claim 38, further comprising a handle mounted at the distal end of the probe body, the handle comprising a housing having a generally open interior.

40. (Original) An irrigation probe according to claim 34, wherein the generally rigid probe body comprises a malleable material.

41. (Original) An irrigation probe according to claim 34, wherein the flexible metal ribbon is made of nitinol.

42. (Currently Amended) An irrigation probe comprising:

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a generally rigid probe body having proximal and distal ends;

a generally flexible irrigation tube having first and second ends, the irrigation tube defining an inner cavity, wherein the irrigation tube generally forms a loop and both the first and second ends are separately fixedly attached to the distal end of the probe body, the irrigation tube having at least one irrigation opening through which fluid can pass from the inner cavity to the outside of the irrigation tube;

[an] a continuous electrode comprising a flexible metal ribbon having first and second ends, wherein the metal ribbon is coiled around from about 20% to about 100% of the length of the loop formed by the irrigation tube, the metal ribbon forming [to form] coils, and wherein space is provided between the coils to allow fluid to pass from the irrigation tube to the outside of the electrode;

a handle mounted to the proximal end of the probe body; and  
an infusion tube having proximal and distal ends, wherein the distal end of the infusion tube is in fluid communication with the inner cavity.

43. (Withdrawn) An irrigation probe according to claim 42, wherein the generally rigid probe body comprises:

a generally rigid tubular body having proximal and distal ends, wherein the tubular body has at least one irrigation opening at its distal end through which fluid can pass to the inner cavity of the irrigation tube; and

a non-conductive sheath covering the tubular body.

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44. (Withdrawn) An irrigation probe according to claim 43, wherein the tubular body has an inner diameter ranging from about 0.40 inch to about 0.80 inch and an outer diameter ranging from about 0.50 inch to about 0.90 inch.

45. (Withdrawn) An irrigation probe according to claim 43, wherein the tubular body is made of a malleable material.

46. (Withdrawn) An irrigation probe according to claim 43, further comprising a flexible plastic tubing attached to the proximal end of the tubular body for introducing fluid into the tubular body.

47. (Original) An irrigation probe according to claim 42, wherein the probe body has a length ranging from about 3.5 inches to about 12 inches.

48. (Original) An irrigation probe according to claim 42, wherein the probe body has a length ranging from about 7 inches to about 8 inches.

49. (Original) An irrigation probe according to claim 42, wherein the loop has a diameter ranging from about 0.50 inch to about 1.5 inches.

50. (Original) An irrigation probe according to claim 42, wherein the loop has a diameter ranging from 0.75 inch to about 1.25 inches.

51. (Original) An irrigation probe according to claim 42, wherein the metal ribbon is made of nitinol.

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52. (Withdrawn) An irrigation probe according to claim 42, wherein the generally rigid probe body comprises:

tubing having proximal and distal ends and first and second lumens extending therethrough, wherein the irrigation tube and electrode are mounted at the distal end of the tubing;

an infusion tube that extends at least part of the way through the first lumen of the tubing, wherein the distal end of the infusion tube is in fluid communication with the inner cavity of the irrigation tube; and

a stiffening wire having proximal and distal ends that extends through the second lumen of the tubing.

53. (Withdrawn) An irrigation probe according to claim 52, wherein the stiffening wire is made of a malleable material.

54. (Withdrawn) An irrigation probe according to claim 52, wherein the probe body has a length ranging from about 3.5 inches to about 12 inches.

55. (Withdrawn) An irrigation probe according to claim 52, wherein the probe body has a length ranging from about 7 inches to about 8 inches.

56. (Original) A method for treating atrial fibrillation in a patient comprising:

opening the heart of the patient; and

ablating at least one linear lesion in the heart tissue using an irrigation probe as recited in claim 42.

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57. (Withdrawn) A method according to claim 56, wherein the generally rigid probe body comprises:

a generally rigid tubular body having proximal and distal ends, wherein the tubular body has at least one irrigation opening at its distal end through which fluid can pass to the inner cavity of the irrigation tube; and

a non-conductive sheath covering the tubular body.

58. (Withdrawn) A method according to claim 57, wherein the tubular body has an inner diameter ranging from about 0.40 inch to about 0.80 inch and an outer diameter ranging from about 0.50 inch to about 0.90 inch.

59. (Withdrawn) A method according to claim 57, wherein the tubular body is made of a malleable material.

60. (Withdrawn) A method according to claim 57, further comprising a flexible plastic tubing attached to the proximal end of the tubular body for introducing fluid into the tubular body.

61. (Previously Presented) A method according to claim 56, wherein the loop has a diameter ranging from about 0.50 inches to about 1.5 inches.

62. (Previously Presented) A method according to claim 56, wherein the loop has a diameter ranging from about 0.75 inch to about 1.25 inches.

63. (Previously Presented) A method according to claim 56, wherein the metal ribbon is made of nitinol.

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64. (Currently Amended) An irrigation probe comprising:  
a generally rigid probe body having proximal and distal ends;

a generally flexible irrigation tube having first and second ends, the irrigation tube defining an inner cavity through which no other components extend, wherein the irrigation tube generally forms a loop and at least one end is fixedly attached to the distal end of the probe body, the irrigation tube having at least one irrigation opening through which fluid can pass from the inner cavity to the outside of the irrigation tube;

means for introducing fluid into the inner cavity of the irrigation tube; and

[an] a continuous electrode comprising a flexible metal ribbon having first and second ends, wherein the metal ribbon is coiled repeatedly around from about 20% to about 100% of the length of the loop formed by the irrigation tube, the metal ribbon forming [to form] coils, and wherein space is provided between the coils to allow fluid to pass from the irrigation tube to the outside of the electrode, and wherein the first and second ends of the metal ribbon extend into the distal end of the probe body.

65. (Previously Presented) An irrigation probe according to claim 64, wherein both the first and second ends of the irrigation tube are fixedly attached to the distal end of the probe body.

66. (Cancelled).

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67. (Previously Presented) An irrigation probe according to claim 64, wherein the probe further comprises an electrode lead wire with proximal and distal ends wherein the proximal end of the electrode lead wire is electrically connected to a source of ablation energy and the distal end of the electrode lead wire is electrically connected to the electrode.

68. (Previously Presented) An irrigation probe according to claim 64, wherein the means for introducing fluid into the inner cavity comprises an infusion tube having proximal and distal ends, wherein the distal end of the infusion tube is in fluid communication with the inner cavity.

69. (Previously Presented) An irrigation probe according to claim 64, wherein the generally rigid probe body comprises a malleable material.

70. (Previously Presented) An irrigation probe according to claim 64, wherein the flexible metal ribbon is made of nitinol.

71. (Previously Presented) A method for treating atrial fibrillation in a patient comprising:

opening the heart of the patient; and  
ablating at least one linear lesion in the heart tissue using an irrigation probe as recited in claim 64.

72. (Previously Presented) A method according to claim 71, wherein the loop has a diameter ranging from about 0.50 inch to about 1.5 inches.

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73. (Previously Presented) A method according to claim 71, wherein the loop has a diameter ranging from about 0.75 inch to about 1.25 inches.

74. (New) An irrigation probe according to claim 42, wherein the metal ribbon electrode is coiled around about 100% of the length of the loop formed by the irrigation tube.

75. (New) An irrigation probe according to claim 42, wherein the metal ribbon electrode is coiled around about 80% of the length of the loop formed by the irrigation tube.

76. (New) An irrigation probe according to claim 42, wherein the metal ribbon electrode is coiled around about 60% of the length of the loop formed by the irrigation tube.

77. (New) An irrigation probe according to claim 42, wherein the metal ribbon electrode is coiled around about 40% of the length of the loop formed by the irrigation tube.

78. (New) An irrigation probe according to claim 42, wherein the metal ribbon electrode is coiled around about 20% of the length of the loop formed by the irrigation tube.

79. (New) An irrigation probe according to claim 65, wherein the first end of the irrigation tube is fixedly attached at a first location on the distal end of the probe body, and the second end of the irrigation tube is fixedly attached at a second location on the distal end of the probe body.

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80. (New) An irrigation probe according to claim 64, wherein the metal ribbon electrode is coiled around about 80% of the length of the loop formed by the irrigation tube.

81. (New) An irrigation probe according to claim 64, wherein the metal ribbon electrode is coiled around about 60% of the length of the loop formed by the irrigation tube.

82. (New) An irrigation probe according to claim 64, wherein the metal ribbon electrode is coiled around about 40% of the length of the loop formed by the irrigation tube.

83. (New) An irrigation probe according to claim 34, wherein the metal ribbon electrode is coiled around about 100% of the length of the loop formed by the irrigation tube.

84. (New) An irrigation probe according to claim 34, wherein the metal ribbon electrode is coiled around from about 80% of the length of the loop formed by the irrigation tube.

85. (New) An irrigation probe according to claim 34, wherein the metal ribbon electrode is coiled around about 60% of the length of the loop formed by the irrigation tube.

86. (New) An irrigation probe according to claim 34, wherein the metal ribbon electrode is coiled around about 40% of the length of the loop formed by the irrigation tube.